

# Tailoring and Critical Thinking— Key Principles for Acquisition Success

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**B**ased on recent Department of Defense (DoD) acquisition guidance, programs now have the opportunity to approach acquisition program management in ways previously viewed as nontraditional. Unfortunately, many programs are hesitant to veer too far from accepted routines, thereby not taking advantage of opportunities to explore new acquisition approaches. In one partnership between the Defense Advanced Research Projects Agency (DARPA) and U.S. Navy, however, such opportunities have been fully embraced and may provide future programs with touchstones on how to increase program cost-effectiveness and efficiency as well as program success.

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## The Long Range Anti-Ship Missile Opportunity

To ensure DARPA maintains its ability to deliver outsized impact by focusing on breakthrough technologies, the agency seeks active engagement with its technical community and users as sources of inspiration. One approach DARPA uses to better understand warfighter needs is to visit Service and Combatant Command organizations and listen to customer desires that require innovative solutions in a short time period. In 2008, one such visit with ADM Robert Willard (Commander, U.S. Pacific Fleet) resulted in a request for a technical capability that became the Long Range Anti-Ship Missile (LRASM) program.

The LRASM program started in 2009 as a joint design and demonstration initiative between DARPA and the Office of Naval Research. With DARPA as the lead organization, the LRASM program was to leverage the state-of-the-art Joint Air-to-Surface Standoff Missile Extended Range (JASSM-ER) airframe, and incorporate additional sensors and systems to achieve a survivable subsonic cruise missile (See artist's concept on Page 8).

In 2013, DARPA conducted two successful flight demonstrations that initially proved the technical approach. Concurrent with these technical accomplishments came two important programmatic decisions. First, a Resource Management Decision was issued that officially provided resources for a joint DARPA-Service transition effort to mature the technology and deliver an early operational capability (EOC) by Fiscal Year (FY) 2018. Second, an Acquisition Decision Memorandum (ADM) was signed by Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]) Frank Kendall in February 2014 that approved the Navy's request to implement an accelerated acquisition approach with streamlined guidance and delegated

the Milestone Decision Authority to Sean Stackley, Assistant Secretary of the Navy for Research, Development and Acquisition (ASN/RDA).

This effort was one of many to come upon the transitional "Valley of Death"—an effort moving from technology demonstration/maturation to formal Program of Record status—resulting in programs encountering both challenges and opportunities depending on the chosen acquisition philosophy. According to CAPT Carl Chebi, the U.S. Naval Air Systems Command (NAVAIR)'s Precision Strike Weapons program manager (PMA-201) in 2009-2013, the early recognition of the high risk yet high potential of this effort by senior leadership helped set the foundation for a successful transition.

### Establishing the Foundation

A key outcome from the ADM was establishment of the LRASM Deployment Office (LDO), which was given the responsibility to implement the accelerated acquisition approach with the streamlined governance. At this point, the LRASM program began an LDO restructure based on the need to continue technical development while transitioning from DARPA to the U.S. Navy.

The subsequent LDO restructuring discussions were influenced largely along cultural tendencies—that is, merging people with different perspectives on managing a weapon system acquisition program. On one hand there was the DARPA worldview: Modify and tailor guidelines to achieve outsized impact as quickly as possible, which leads to acceptance of some high-risk options. Alternatively, there was NAVAIR's worldview: Adhere to a rigorous and methodical approach in close alignment with existing Office of the Secretary of Defense (OSD) and Navy guidance and oversight.

Realizing that a traditional acquisition program approach was impractical with an FY 2018 deployment timeline, the cooperatively led DARPA/Navy LDO was a very close teaming arrangement with co-leads: Dr. Arthur Mabbett from DARPA's Tactical Technology Office and Navy CAPT Jaime Engdahl, PMA-201 program manager from the Program Executive Office for Unmanned Aviation and Strike Weapons (PEO [U&W]).

When establishing the LDO, Mabbett described two LDO characteristics thought necessary to meet the LRASM program goals: "The LDO required an approach ensuring focused and dedicated collaboration between the S&T [Science and Technology], Acquisition, and T&E [Test and Evaluation] communities. Also, the organization needed to be given a high degree of autonomy while unhampered from the normal acquisition program bureaucracy. Therefore, we wanted the LDO to incorporate a principled program execution approach: Time is of the essence, flatter/leaner organization, decision timing aligns with program execution, and streamlined processes."





**Artist's concept of the LRASM in action.**

*With permission from Lockheed Martin.*

## Key Principles for Success

To achieve a successful transition resulting in a warfighter capability by FY 2018, the LRASM team relied upon two powerful acquisition principles—tailoring and critical thinking.

### ***Tailoring***

The new DoD Instruction (DoDI) 5000.02 (*Operation of the Defense Acquisition System*) dated Jan. 7, 2015, includes more than 50 references to the principle of “tailoring.” As stated in the Instruction: “The structure of a DoD acquisition program and the procedures used should be tailored as much as possible to the characteristics of the product being acquired, and to the totality of circumstances associated with the program including operational urgency and risk factors.”

This concept is illustrated by the four basic and two hybrid defense acquisition program models presented in DoDI 5000.02. These models are intended to serve as examples of program structures tailored to the type of product being acquired or the need for accelerated acquisition. The explicitly stated expectation for every acquisition program is to view the most relevant model (i.e., hardware focused, software focused, etc.) as an initial baseline approach, which then should be tailored to the unique character of the product being acquired. In the DoDI 5000.02 cover memorandum, Kendall stressed the importance of program managers using these models “... as

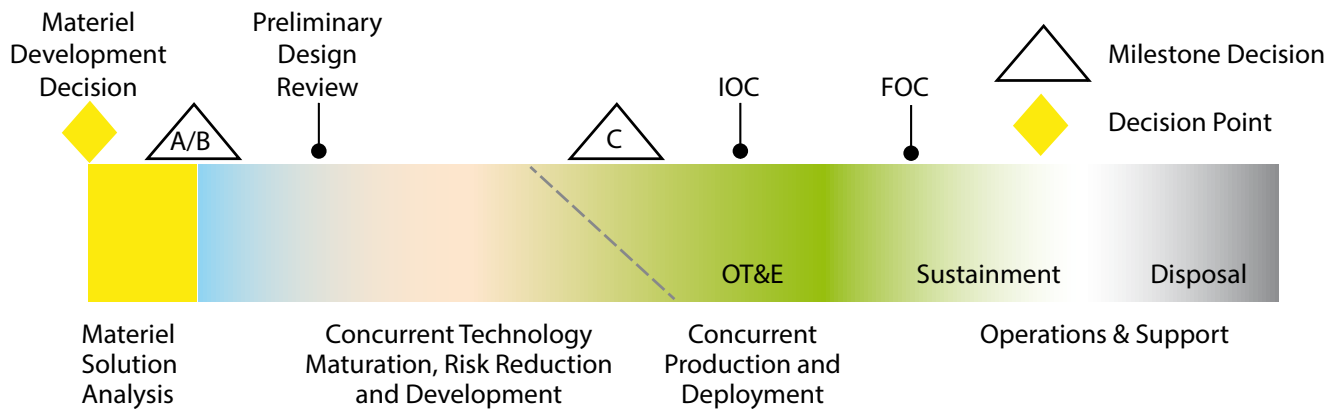
references to assist their thought processes and analysis of the best structure to use on a given program.”

In the case of the LRASM program, the LDO was structured when the new DoDI 5000.02 was released. This timing turned out to be fortuitous. Navy CAPT Kevin Quarderer, LRASM principal deputy program manager during the technology demonstration effort, remarked: “The LDO team viewed the new DoDI 5000.02 to be more permissive than previous versions. We felt this new guidance provided justification—and formally sanctioned backing—for the team to do what they felt necessary to meet the LRASM program time lines. We recognized that we were now in a position where we could tailor our program to only accomplish the absolutely essential statutory, regulatory and milestone requirements while, at the same time, negotiating out from other processes, reviews, documents, etc., that did not provide any ‘value-added’ contribution.”

Since the LRASM program was acknowledged as an accelerated acquisition program, the LDO team embraced the tailoring concept afforded by Model 4 (Accelerated Acquisition Program) as its acquisition framework starting point (Figure 1).

Engdahl described the LRASM team’s challenge of taking this new accelerated acquisition construct that was very flexible

**Figure 1. Model 4: Accelerated Acquisition Program**



Source: DoDI 5000.02, Jan. 7, 2015, p. 13.

and tailorable: “The team wrote a ‘clean-sheet’ acquisition strategy that tailored the systems engineering process and milestones that we defined as ‘knowledge points’ to clearly articulate the points in the program where we expected to have enough knowledge to make specific program decisions. We then tailored documentation and requirements strategies to move as quickly as possible through the program.”

### Critical Thinking

A basic principle for improved defense acquisition outcomes is to expect program managers and their team to think critically. Kendall has highlighted critical thinking as a cornerstone to improved acquisition outcomes. As one of the four key overarching principles associated with the Better Buying Power initiative, he wrote: “The first responsibility of the acquisition workforce is to think. ... Our workforce should be encouraged by leaders to think and not to automatically default to a perceived ‘school solution’ just because it is expected to be approved more easily.”

The LRASM program was based on the understanding that critical thinking was necessary for program success; the program could not afford to blindly follow well-worn paths used by other programs. The program management team needed to think in terms of being trailblazers in challenging the norm—and critical thinking was a skill that would help the team do so. Fortunately, with the influence of DARPA’s long-established culture that seeks out critical thinking, this skill became part of the LRASM “way of life” from the beginning.

Mabbett identified the principle of critical thinking as one of the keys to success for not just the LRASM program but for any acquisition program: “Always challenge the norm or typical way of doing business. Yes, programs have guidelines and processes to consider; but programs should not take these guidelines and processes as things that have to be followed unquestioned. Add logic and thought. Think about what processes exist to help—as program manager, IPT [Integrated Product Team] lead, or team member—to make the right

decisions. Processes are simply one piece of a program’s tool set. Learn to challenge and question assumptions and data presented until you’re convinced the most cost-effective and efficient decision is being made.”

According to Mabbett, “Team empowerment was absolutely essential to the daily progress and success of the program. We did not treat ‘empowerment’ as a cliché. Rather, leadership challenged the team to make decisions and solve problems using a critical thinking approach. Our job as leadership was, in turn, to engage the team members on their decisions to verify they had thought the problem and solution through. We had a mutual exchange to confirm the thought process and decision, and then moved on.”

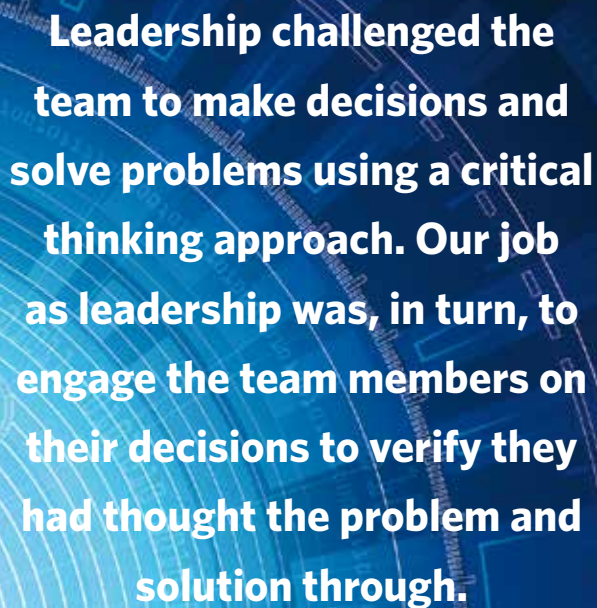
Critical thinking is a key part of all LRASM processes. As one example, the program tailors its system engineering process to the specific systems engineering event. The large number of technical experts who typically show up at such events is drastically reduced to ensure a focus on the technical review boards, where approximately a half-dozen independent participants come in to provide experienced consultation. So systems engineering events such as Preliminary Design Reviews and Critical Design Reviews become important learning events about where technical risks may lie. This approach relies upon a more critical-thinking approach and provides a more useful outcome for the team.

### Key Success Enablers

LRASM then used these two key principles—tailoring and critical thinking—in conjunction with interrelated key success enablers in order to best structure the program for a successful acquisition outcome.

### Senior Leadership Access

LRASM benefited from senior leadership access based on direct support to a Combatant Commander and Numbered Fleet Commander in order to counter adversaries’ use of emerging technologies. The LRASM program used this access to



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coordinate senior leadership support for the tailoring and critical thinking approaches being developed; this established a solid program foundation at the very beginning.

With this foundation, the LRASM program lean governance approach then included the establishment of an Executive Steering Board (ESB) with Stackley and DARPA Deputy Director Steve Walker as the principals. Monthly ESB meetings became the core means for LRASM senior leadership to regularly and quickly inform stakeholders of ongoing progress and key decisions. The ESB approach was able to minimize staffing churn and perceived bureaucratic obstacles. The objective was to keep the program moving forward, and the ESB's streamlining of the oversight process turned out to be an effective means to accomplish this goal.

### ***Stakeholder Buy-In***

Constant communication was absolutely essential to educate stakeholders at all levels as to how the LRASM program was structured and managed. As this acquisition program differed from the norm, clear messaging and continuous engagement were of paramount importance. Expectations were communicated explicitly and unambiguously. The LRASM leadership team also took on an instructor role to educate those comfortable with the more traditional acquisition process: It was not only acceptable—but expected—to take more nontraditional approaches in an accelerated fashion.

### ***Streamlined Decision Making***

The LDO decision-making process was developed very early in the program: Decision making was considered fundamentally important to keep the LRASM program successfully moving forward. Not only did the DARPA/Navy interface have to be

managed, but the Air Force JASSM-ER and B-1 and Navy F/A 18 programs had extensive equities affecting daily program execution—and these also required attention.

The LRASM program employed as little formal staffing as possible. Weekly decision boards were scheduled to discuss program status. These meetings concentrated on decision criteria, or decisions that were needed in order to maintain program momentum. Team leads came prepared with background, options and recommendations for each of their decision criteria topics so LRASM leadership could make decisions. Such an approach created transparency and resulted in much discussion. As a result, there was no uncertainty about coming issues that could hold back the program if there was no decision.

"I insisted on a succinct decision-making process since we didn't have the time to continuously analyze every problem over and over," Mabbett stated. "The philosophy was for LRASM leadership to verify critical team decisions in order to maintain progress."

### ***Risk Management***

One of the LRASM program frameworks is reliance on a fundamental systems engineering process woven into the program's integrated master schedule (IMS). Once a week, the IMS is reviewed with the team leads and prime contractor, Lockheed Martin, to evaluate program status in terms of identified metrics inside the systems engineering process. Wrapped into this activity is an integrated risk process. As a result, all risk-mitigation steps are quantified as they relate to the systems engineering process and are rolled into the IMS. Therefore, the program managers can see how risk mitigation is executed inside the IMS and, in turn, actually reduce the formal risk associated with the program.

Careful consideration ensured that risk management was steeped in systems engineering principles—but not driven by the systems engineering process. This approach has become an important ESB tool from an oversight perspective—specifically, in terms of how risk can be used when focused within the context of the systems engineering process and IMS to mitigate risks as much as possible.

### ***The Right People***

LRASM leadership kept the initial LDO small with no more than 12 subject-matter experts—all of them unquestioned experts. These highly skilled team members were handpicked for openness, agility and motivation to lean forward and succeed. Subsequently, the LDO has incorporated Navy personnel as functional leads alongside DARPA subject-matter experts now that the transition effort is under way. But the tenet of the program has not waived: Use only the right person with the right skills in the right job.

The importance of keeping to this fundamental tenet is borne out in the risk-management process. Having chosen the right people in the right place with the right skills, LRASM



leadership empowered the team members to come up with their own processes and products that they used to manage the program—in this case, the risk-management process. Such an approach helps create team buy-in and is an example of applying the necessary rigor and then using it for speed in the program.

Such empowerment of the right people allows the LRASM program to maintain a flat, lean organizational profile. LRASM leaders view this situation as a leadership opportunity in that their people are chartered not only to execute the program but to invent rapid and innovative processes and keep the program moving forward. In this regard, Quarderer remarked: “Management’s main challenge was to keep up with each of our teams as they made progress, but that’s fine—that’s what management should want.”

### ***Inspired by the Mission***

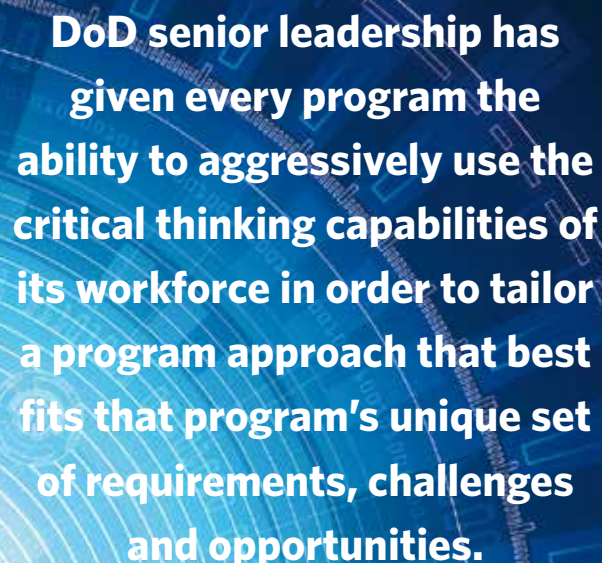
Quarderer explained that his time in the Fleet helped him to stay motivated and to motivate others while part of the LDO. “I remember feeling that I did not have the upper edge that I wanted, and that if we went to combat, I didn’t feel that the end outcome was going to be where I wanted it to be,” he said. In sharing his experience and the fact that ADM Harry B. Harris Jr., then commander, U. S. Pacific Fleet, had taken time to address the LDO about the importance of its efforts, Quarderer felt that the team members understood the sense of urgency in meeting their commitment.

### ***Operational Pause***

While the recognized sense of urgency was driving the team to move quickly, Engdahl and Mabbett recognized the need to take time to assess the effectiveness of the LDO. They approached the Defense Acquisition University to conduct interviews and a Team Effectiveness Survey to provide an assessment of the organization, individual satisfaction, team effectiveness, communications and command climate of the LDO. While it seemed the effort would take precious time away from the many things the LDO needed to do to make aggressive progress, the effort proved critical for the leadership team’s ability to address the LRASM challenges and opportunities. Quarderer commented: “We needed to take a pause and figure out what was going well, what were long-term challenges, and what needed to be corrected. We needed to do all that very quickly before we got too far down the road in any of those nonstandard organizational pieces that were not working well before they festered too long. We needed the team to be a well-functioning group so that we could focus completely on the mission if we were going to make our timeline.”

### ***Maintain Focus***

Like any acquisition program, the LRASM program was buffeted by a multitude of expectations that were not always in alignment with each other. From the very beginning, the LRASM leadership kept a singular laser focus on the stated and original requirements. Efforts to expand LRASM’s capabilities through requirements creep were continually and



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successfully rebuffed. This message was strongly conveyed to the LRASM team to ensure a “one voice” approach to expectations management. The schedule was too tight for anything to be entertained but the originally stated requirements; anything different was recognized as a near-certain reason to miss the FY 2018 EOC date.

### ***Not “The” Answer***

Can the initiatives and approaches used by the LRASM program be replicated by all acquisition programs? No. A one-size fits all approach would not lead to the successes realized by the LDO. Can other acquisition programs examine LRASMs initiatives and approaches for potential applicability? Absolutely.

And that’s the point: The LDO construct is not “the” answer for how to further improve government acquisition processes. But it illustrates that all programs have the opportunity to develop their own tailored initiatives and approaches. DoD senior leadership has given every program the ability to aggressively use the critical thinking capabilities of its workforce in order to tailor a program approach that best fits that program’s unique set of requirements, challenges and opportunities.

All programs need to eagerly embrace such a mindset. Threats to our national security are accelerating while budgets decline, and therefore we all need to challenge existing processes and procedures so we can produce and deliver weapon systems in the most cost-effective and efficient manner possible. Anything less is a disservice to the warfighters and taxpayers. 🤖

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